Claims

1. A method for sustaining operation of a smart portable object (1) provided with a processor block (6) having at least two communications and/or power supply interfaces that are contact and/or contactless interfaces, said method including a step (RST) for reinitializing the processor block (6);

said method being characterized in that it includes at least one step for delaying and/or faking re-initialization in the event that a call/communication or an application is being processed by the processor block.

2. A method according to claim 1, characterized in that it includes at least one phase of detecting a reset (RST) transition (5.16; 16.16) capable of perceiving an interruption, e.g. in the form of an interruption processing routine.

3. A method according to claim 1 or claim 2, characterized in that it provides at least one phase of delaying the reset instructions, which phase includes at least one memory zone address, with a chosen code; the memory zone receiving instructions coming from the chosen code, execution of which generates delay commands.

4. A method according to claim 3, characterized in that, during the delay phase, execution of the instructions coming from the chosen code generates at least one of the following delay commands: block the contact interface (7) in its current state, e.g. by sending a single usual Answer-to-Reset ("ATR") byte in

response to activation of the reset; continue the application using the contactless interface (3); keep data useful to the contactless application in a memory without erasure; verify the ON state of the contact interface (7); and resume the functions required for the contact interface (7), e.g. by ending a series of Answer-to-Reset (ATR) bytes.

5. A method according to claim 4, characterized in that a delay command with functions being resumed takes place after a predefined number of clock cycles, e.g. approximately in the range of 400 clock cycles to 40,000 clock cycles.

6. A method according to any one of claims 1 to 5, characterized in that, during a reset (RST) transition (15.16) from a via the contactless interface (3) operating state (15) to the dual operating state (16), at least one immediate warning step is provided in addition to the keep data in a memory step.

7. A method according to claim 6 or claim 7, characterized in that the immediate warning step provides a phase of switching over between the resources so that they are drawn at least in part via the contactless interface (3).

8. A method according to claim 6, characterized in that the immediate warning step provides a phase of switching over between the resources so that they are drawn at least in part via the contact interface (7).

9. A method according to any one of claims 1 to 8, characterized in that, at the end of the warning step, interruptions are generated when a buffer receive

memory is considered to be saturated, and can be processed by an operating system of the processor block (6), said interruptions, for example, notifying the application that data is available for processing.

10. A method according to claim 9, characterized in that when a contactless frame arrives, the warning step effects at least one phase of: detecting said frame, e.g. by means of the presence of a contactless electrical power supply source; transforming the frame into binary form, and initializing, for example, anti-collision processing; and, once the frame in question is considered as being correctly received and the preceding steps as being effected normally, the usual processing is authorized.

11. A method according to any one of claims 1 to 10, characterized in that the other contactless standard is Standard ISO.IEC1443 relating to the contactless interface (3).

12. A method according to any preceding claim, characterized in that said object (1) is suitable for communicating with at least one electronic data transmission terminal (2) via a contact interface (7) in compliance with Standard ISO77816.

13. A device for sustaining fully simultaneous operation of a smart portable object (1) having a dual interface, and provided with a processor block (6); said object (1) being suitable for communicating with at least one electronic data transmission terminal (2) for electronically transmitting data via a contact interface in compliance with Standard ISO7816.3, and

also in contactless manner via a contactless interface (3) and in compliance with another, contactless standard; said device making provision as follows: the terminal (2) is connected to the object (1) via the contact interface (7) so as to be made secure by the object (1); in the dual interface operating state (16), the contact interface (7) and the contactless interface (3) operate at the same time; the processor block (6) including reset (RST) circuits for the purpose of reinitializing it when the contact interface (7) is reset (RST);

said device being characterized in that it includes at least transaction-sustaining means (101), including at least one element for delaying and/or faking re-initialization ordered by the contact interface (7) during a reset (RST) transition aiming to reinitialize the processor block (6).

14. A device according to claim 13, characterized in that the transaction-sustaining means (101) include at least one element (107) for detecting a hot reset (RST) transition (15.16; 16.16), which element is capable of perceiving an interruption, said element (107) being, for example, in the form of wiring suitable for perceiving an interruption, and for generating interruption processing.

15. A device according to claim 13 or 14, characterized in that the transaction-sustaining means (101) include at least one delay element for delaying the reset instructions, which element includes at least one memory zone address, with a chosen code; the memory

zone receiving instructions coming from the chosen code, execution of which generates delay commands.

16. A device according to claim 15, characterized in that the delay element includes at least one delay block for delaying by at least: time-delay blocking of the contact interface (7); continuing the application using the contactless interface (3); keeping data useful to the contactless application in a memory without erasure; verifying the ON state of the contact interface (7); resuming the functions required for the contact interface (7).

17. A device according to any one of claims 13 to 16, characterized that, in addition to the transaction-sustaining means (101), the device includes immediate warning means (102).

18. A device according to claim 17, characterized in that the warning means (102) include at least one element for switching over the resources to the contactless interface (3).

19. A device according to claim 17 or claim 18, characterized in that warning means (102) include, at their output, at least one element with a plurality of buffer receive memories and suitable for generating interruptions if a memory is considered to be saturated.

20. A device according to any one of claims 17 to 19 characterized in that the warning means (102) include at least one contactless frame detection element.

21. A transmit terminal (2) having at least one connection via galvanic contact to a smart portable object (1) having a dual interface, with a contact interface (7) enabling the object (1) to make the terminal (2) secure; the object (1) being provided with a chip (6) and being suitable for communicating with the terminal (2) via the contact interface (7) in compliance with Standard ISO7816.3; the object (1) further being provided with a contactless interface (3) communicating in compliance with another, contactless standard;

said terminal (2) being characterized in that it is suitable for taking part in implementing the method according to any one of claims 1 to 11 and/or for receiving the object (1) including the device according to any one of claims 12 to 19.

22. A terminal (2) according to claim 21, characterized in that said terminal (3) forms a cellphone (e.g. GSM; 3GPP; UMTS; CDMA, etc.) and/or a handheld personal digital assistant (PDA); and/or a decoder; and/or a computer.

23. A portable smart object (1) suitable for taking part in implementing the method according to any one of claims 1 to 11 and/or including a device according to any one of claims 12 to 20 and/or suitable for being connected to a terminal according to claim 21 or claim 22;

said object (1) being characterized in that it is a dual-interface object, and is provided with a chip (6); the object (1) being suitable for communicating

with at least one electronic data transmission terminal (2) for electronically transmitting data via a contact interface (7) in compliance with Standard ISO7816.3, and via a contactless interface (3) and in compliance with another, contactless standard; the method making provision for: the terminal (2) to be made secure by the object (1) via the contact interface (7).

24. An object (1) according to claim 23, characterized in that said object (1) is a smart card; an electronic ticket, a "dongle"; or a module such as a proximity communications module (e.g. a Near Field Communications (NFC) module or a semi-proximity (e.g. BlueTooth) module.